

What Is Claimed Is:

1. A semiconductor manufacturing method, comprising the steps of:

5 exchanging a substrate between a preliminary chamber and the outside;

subjecting the substrate to a predetermined processing in a process chamber;

10 transferring the substrate through a transfer chamber provided between said preliminary chamber and said process chamber; and

supplying and exhausting an inert gas to and from at least the chamber in which the substrate is present among said chambers during the transfer of said substrate.

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2. A semiconductor manufacturing method, comprising the steps of:

exchanging a substrate between a preliminary chamber and the outside;

20 subjecting the substrate to a predetermined processing in a process chamber;

transferring the substrate through a transfer chamber provided between said preliminary chamber and said process chamber; and

25 supplying and exhausting an inert gas to and from all of said chambers during the transfer of said substrate.

3. A semiconductor manufacturing method, comprising the steps of:



exchanging a substrate between a preliminary chamber and the outside;

subjecting the substrate to a predetermined processing in a process chamber;

5       transferring the substrate through a transfer chamber provided between said preliminary chamber and said process chamber; and

supplying and exhausting an inert gas to and from at least the chamber equipped with a vacuum pump among said  
10       chambers during the transfer of said substrate.

4.     The semiconductor manufacturing method according to Claim 1, wherein the exchange of the substrate between said preliminary chamber and the outside is carried out with a  
15       cassette that holds a plurality of substrates.

5.     The semiconductor manufacturing method according to Claim 1, wherein the predetermined processing to which the substrate is subjected in said process chamber is HSG  
20       formation or epitaxial growth.

6.     A substrate processing method, comprising the steps of:

exchanging a substrate between a preliminary chamber and  
25       the outside;

subjecting the substrate to a predetermined processing in a process chamber;



transferring the substrate through a transfer chamber provided between said preliminary chamber and said process chamber; and

supplying and exhausting an inert gas to and from at least the chamber in which the substrate is present among said chambers during the transfer of said substrate.

7. A semiconductor manufacturing apparatus, comprising:  
a preliminary chamber from and to which a substrate is exchanged with the outside;

a process chamber in which the substrate is subjected to a predetermined processing;

a transfer chamber in which the substrate is transferred between said preliminary chamber and the process chamber by a built-in transfer robot;

inert gas supply portion provided to each of said chambers that supplies an inert gas into the corresponding chamber;

gas exhaust portion provided to each of said chambers that exhausts the gas from the corresponding chamber; and

controller that controls said inert gas supply portion and gas exhaust portion and thereby supplying and exhausting an inert gas to and from at least the chamber in which the substrate is present during the transfer of said substrate.

8. The semiconductor manufacturing apparatus according to Claim 7, wherein said preliminary chamber is a cassette chamber into which is transferred a cassette that holds a plurality of substrates.